



Inappropriate Use of Restraints in Hospitalized Older Adults during the COVID-19 Pandemic: A Case Report

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¹This paper is based on Ellie Robson's work in a Master level course. Final project for NURS 824: Advanced Integrative Exercise. Completed December 2023. The primary author made important contributions to the paper, including generating the research topic, exploring the literature, and completing the manuscript draft.

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Abstract

There has been an increase in the use of patient restraints in hospital since the onset of the COVID-19 pandemic. Patients living with dementia are at a greater risk of being restrained when hospitalized. This case report presents a gentleman, known as Mr. S, a 73-year-old with dementia admitted to the hospital during the pandemic and his exposure to restraints. His lived experience will be discussed and will consider the complexity of restraint use, the potential to cause harm and the need to return to least restrictive measures. The inappropriate, increased, and sustained use of restraints will be explored and the need to maintain patient-centered care and minimize the use of restraints in hospital settings. This case report aims to increase the understanding of the inappropriate use of restraints in hospital settings and change practice to benefit older adults with dementia.

Key Words: cognitive impairment, COVID-19, hospital, older adults, restraint use

The COVID-19 pandemic has impacted in-hospital use of chemical and physical restraints among older adults (Jones et al., 2022; Wong et al., 2022). There has been a significant increase in the use of antipsychotics and benzodiazepines since the onset of the COVID-19 pandemic, both in Canada (Campitelli et al., 2021) and globally (Okuno et al., 2021). There has also been a notable increase in the use of other forms of patient restraints in hospital settings. Okuno et al. (2021) noted that patients living with dementia were more likely to be physically restrained in

hospital during the COVID-19 pandemic than when compared with other inpatients admitted to hospital.

Restraints were used pre-emptively (and perhaps inappropriately) in hospitals in anticipation of the challenges faced with COVID-19 outbreaks (Jones et al., 2022). The purpose of this restraint use was to limit the risk of COVID-19 transmission during staffing shortages, family/visitation restrictions, concurrent issues with staffing challenges, burnout, and social distancing measures in patients experiencing cognitive challenges (Okuno et al., 2021; Siegrist-Dreier et al., 2022). Healthcare professionals identified rising concerns surrounding the inappropriate, increased, and sustained restraint usage in addition to not obtaining informed consent and documenting restraint initiation and monitoring (Jones et al., 2022; Okuno et al., 2021).

Restraints can damage therapeutic relationships, leading to mistrust of healthcare professionals and put patients at risk of functional decline, psychological and emotional trauma, serious injury and can lead to death (Jones et al., 2022). The purpose of this case report is to use a case-study as an exemplar to increase the understanding of the inappropriate use of restraints in hospital settings and change practice to benefit older adults with dementia.

Description of Case Report

Provided in this case report is an example from practice about a 73-year-old man living with dementia admitted to hospital during the COVID-19 pandemic in an acute delirium. Previously, he had been living at home with his wife. The events discussed in this case report are an amalgamation of stories familiar to the authors' nursing practice, knowledge, personal experience, and area of interest. This is from the perspective of Alberta, Canada; acknowledging that there may be variances between provinces and territories.

Mr. S is a 73-year-old man with dementia who was being cared for by his wife in their home. He developed aphasia over the course of his diagnosis. Owing to the progression of his dementia, his family doctor was overseeing his care and had prescribed Lorazepam (classed a benzodiazepine drug) as needed to 'support' him during periods of restlessness at home and to help him settle and sleep. His wife, Mrs. S, had given her husband this medication on several occasions when he was struggling. He also had recently developed a urinary tract infection (UTI) and had started to display responsive behaviours at home making it difficult for his wife to manage his care. Mrs. S had hired private home care support to assist with Mr. S, and to support her with light household duties. Owing to the UTI and effects of Lorazepam, it became more challenging to cope at home. His wife, with the recommendation of the home care team, decided to take him to the emergency department (ED) for assessment and treatment. His adult children were away at the time and unable to provide additional assistance to Mr. S and his wife.

After being in the ED for greater than 12 hours, Mr. S became increasingly restless and unable to settle or sleep on the stretcher. He started to refuse treatment, pulled away during procedures and demonstrated increasing agitation and restlessness. Mrs. S was told by the ED physician that Mr. S was also experiencing an acute delirium from the UTI and benzodiazepines. The staff strongly encouraged her to go home and rest as it was getting late and that he would

need to stay overnight to further assess and treat his condition. Shortly before she left, Mr. S became highly anxious, unsettled, and desired to leave the hospital. The team decided to keep Mr. S safe by certifying him under the Alberta Mental Health Act, meaning he could not leave on his own free will and was detained in the hospital. Owing to his insistence on wanting to leave, the staff called three security peace officers to assist with detaining him in the ED. Two officers physically held down Mr. S, on the stretcher, and the third officer stood guard keeping watch outside the cubicle. The security personnel and the nursing team decided he should be restrained with mechanical restraints (e.g., Pinel, see Table 1) and to administer off-label antipsychotic medications to ‘settle’ him. Mr. S could not freely move his arms, legs, or torso owing to the restraints. Mrs. S, who was also his active Agent, was not fully informed about the restraint use nor asked to provide consent on behalf of her husband. This was upsetting and disturbing for both Mr. and Mrs. S.

The following day upon returning to the ED to see her husband, Mrs. S found him to be lethargic, his eyes closed, mumbling incoherently, picking at his bed clothes, and having involuntary severe tremors of the arms and hands, almost unrecognizable to how she had seen him the day before. He was ‘strapped down’ to the stretcher and unable to move freely. Mrs. S was distressed to see her husband this way and did not know that she could refuse the restraints on his behalf. The ED physician informed her that Mr. S would be transferred to a medical inpatient unit that day for further assessment and treatment. Mrs. S called her children right away and told them what had occurred, and they immediately returned home.

Fortunately, Mr. S’s wife and two of their adult children were allowed to visit him during his hospitalization, as some of COVID-19 visitor restrictions had been lifted. Mr. S continued to be subjected to off-label treatment with antipsychotics and mechanical restraints on the acute medical unit. This prolonged his hospital stay, leading to several falls, worsening delirium, responsive behaviours, deconditioning and eventually being unable to return home and requiring placement in a continuing care home. Mr. S continued to decline while in hospital over the next four months and his dementia progressed rapidly. He went from being able to ride a bike and go for long walks less than a year prior to hospitalization, to needing to use a walker and being assisted with all ambulation and transfers. He would have episodes of tremors, verbal outbursts, and hardly ate while in hospital, resulting in weight loss.

After four months of being hospitalized and being on pharmacologic and mechanical restraints, Mr. S was transferred to a continuing care (CC) home specializing in complex dementia care. Over the course of the next twelve months, Mr. S’s care team at the CC home were able to wean him slowly and safely off all the chemical restraints. Mechanical and physical restraints were no longer used. The CC home had a zero-restraint policy and were frequently audited. Care planning was commenced of which the family was engaged in, and Mr. S began to show improvements. The family was involved in all discussions and decisions surrounding his care. The CC home provided physiotherapy, occupational and recreational therapy, consulted a dietitian and Mr. S started to eat again and gain weight. He was able to ambulate more easily and, always with assistance, enjoyed coming to sit out in the common area. Despite having a progressive neurodegenerative disease Mr. S became settled, comfortable, and content. His

family were pleased with the improvements in his care and his overall status since being transferred to CC.

This case report underscores the need for patient-family-centered care, to return to using least restrictive restraints for the shortest duration and engaging in individualized care planning. A discussion of the reasons for restraints, types, and associated risks follows.

Background

Restraints are defined as “interventions that may infringe [on] a person's human rights and freedom of movement, including observation, seclusion, manual restraint, mechanical restraint and rapid tranquillisation” (National Institute for Health and Care Excellence , 2015, p. 17) (see Table 1). Restraints are used in hospital settings when necessary to protect a patient from harming themselves or others. They can be used in behavioural emergency situations when there is an immediate threat to the health and safety of any person or immediate action is needed to prevent serious harm (Alberta Health Services, 2020; College of Nurses of Ontario, 2018). If/when restraints are required, it should be for the shortest duration, and the patient should be monitored closely and reassessed regularly (Alberta Health Services, 2020; Alzheimer Society of Canada, 2019).

Older adults are at a greater risk of being restrained while in hospital at a rate of 33% - 68% (Lim et al., 2016; Gunawardena & Smithard, 2019). The main reasons cited in the literature for restraint use in hospitalized older adults included to prevent falls (43.8%), confusion or delirious behaviour (20.4%), protect medical devices from dislodging or being removed, and in complex care situations (Thomann, Zwakhalen, et al., 2021). In 37% of cases, alternatives to restraints were used as noted by Thomann, Zwakhalen, et al. (2021). The inappropriate use of restraints occurs if restraints are misused, used too often, or when used for the benefit of staff.

Table 1

Types and Examples of Restraints Used in Hospital Settings in Canada

Type	Characteristics	Examples
Environmental	Barrier or device that limits one's movement and confines them to a specific area or location.	Secure spaces, half doors, disguised exits, wander alert technology, or seclusion rooms.
Mechanical	Material, device, or equipment attached to or near a patient which cannot be removed or controlled by the patient and is used with the intent to limit or restrict one's free body movement (Alberta Health Services, 2020).	Use of full bed rails to prevent patient from exiting bed, a recliner chair with the feet elevated used to limit one's movement, chair with a locking table, seat belt or lap belt that a patient cannot release, Posey or Pinel type restraints.

Pharmacological (Chemical)	Refers to the administration of certain medications to reduce or control challenging or responsive behaviours and actions, not to treat a specific medical or psychiatric condition.	Antipsychotics, sedatives, antidepressants, benzodiazepines, and other medications ordered and given on a schedule or as needed.
Physical	Direct physical holding of a patient by a staff member to restrict movement (Registered Nurses' Association of Ontario, 2012).	While providing care, such as holding a patients arm to avoid self-injury during a procedure.

There are four main types of restraints utilized in hospital settings across Canada which include physical, mechanical, environmental, and pharmacological (chemical) restraints (See Table 1). With physical and mechanical restraint use, there is an increased risk of physical injury, falls, fractures, deconditioning, pneumonia, pressure injuries, incontinence, contractures/bruises, cardiac dysrhythmia, deep vein thrombosis, delirium, strangulation, and mortality (Chou et al., 2020; Sharifi et al., 2021; Tan et al., 2005; Titler et al., 2011). Pharmacological restraints also carry significant side effects and can interact with other medications, which can lead to adverse events such as falls, pneumonia, strokes, delirium, and death. Tan et al. (2005) and Titler et al. (2011) support the argument that restraint use is associated with an increased risk of falls and severity of injury in hospitalized patients and can lead to deconditioning and loss of muscle strength.

Discussion

The objective of this case report is to examine how the COVID-19 pandemic impacted hospitalized patients living with dementia, regarding the indications for, and the inappropriate use of restraints. Relating to the case report, the importance of patient and family engagement, informed consent, documentation, education, and evaluation of restraint use in hospital settings will be discussed.

COVID-19 and Dementia

Since the onset of the COVID-19 pandemic there has been an increase and sustained use of patient restraints in hospital settings. Evidenced in the literature reviewed (Campitelli et al., 2021; Jones et al., 2022; Wong et al., 2022) and anecdotally from healthcare professionals, patients, and families (Derfel, 2024). Restraints are frequently used in hospitals for prevention of adverse events such as falls despite the growing evidence of the negative effects and lack of benefit as noted by Chou et al. (2020) and Thomann, Zwakhalen, et al. (2021). Healthcare professionals have identified increased concerns and feel that staffing shortages, high turnover and limited experience resulted in a greater use of restraints in hospital posing an increased risk to patient safety (Siegrist-Dreier et al., 2022).

With dementia and/or delirium the topic of restraints becomes even more complex. Dementia is a neurodegenerative condition that affects cognitive functioning, short-term and long-term memory, thinking, reasoning and interferes with one's daily life and abilities (Alzheimer Society of Canada, n.d.). Furthermore, dementia affects one's ability to problem solve, communicate, and may cause changes to mood/personality. Responsive behaviours, also

called Behavioural and Psychological Symptoms of Dementia (BPSD) are another common characteristic of dementia (Laganà et al., 2022). As a result, a person with dementia, may have difficulty communicating their needs, experiences or controlling their response and may experience BPSD (Cotter, 2005). Similarly, Mr. S experienced this during his hospitalization when restraints were used. He became highly anxious, restless, and desired to leave. He developed incontinence, began to hit, and push staff and use profanities (something he had not done previously), communicating the distress he was experiencing, as his needs were not being acknowledged or met in the new environment. As dementia progresses, people are often unable to recognize their surroundings or what is being asked of them. When a hospitalization for an acute episode is added, this can lead to even further deterioration and a greater risk for development of an acute delirium. A delirium is a medical emergency and is characterized by an acute episode of confusion and inattention (Keenan & Jain, 2022). Delirium is usually temporary, resulting from an acute illness, infection, medications, or other causes and is typically resolved when the cause is addressed.

Hospitalized patients with a diagnosis of dementia and/or a delirium, combined with behavioural disturbances are at a higher risk of being restrained (Chou et al., 2020; Okuno et al., 2021; Singh et al., 2023; Thomann, Zwakhalen, et al., 2021; Wong et al., 2022). As was the case for Mr. S, which can then lead to a prolonged hospitalization, progression of disease and poor outcomes.

Indications for and Inappropriate Use of Restraints

In the literature reviewed (see Appendices A and B), the inappropriate ordering and not obtaining an order prior to the administration of restraints or within 24 hours was discussed (Jones et al., 2022; Siegrist-Dreier., 2022). Physician orders are often not completed for all restraints, often done retrospectively, and requested by nursing (Siegrist-Dreier., 2022). When a decision is made to utilize a restraint, the least restrictive restraint should be ordered and used for the shortest duration; orders are required for all non-emergent uses (Alberta Health Services, 2020).

Considering intended outcomes, potential effects, frequency of monitoring and documentation review, conditions for the use of the restraint and criteria and timelines for discontinuation must be identified. It is important that if restraints are deemed necessary in the short term, the physical and mental well-being of the individual should not be compromised, and discussions have taken place to engage the family and/or agent in the process.

When restraints are utilized in someone with dementia and/or a delirium it restricts their freedom, holding them back and can lead to further progression and loss of cognitive and functional abilities. Restraints should not be utilized as a substitute for proper care of hospitalized patients with cognitive challenges (Alzheimer Society of Canada, 2019). Moreover, restraints should not be considered until all other strategies have been determined to be ineffective or inappropriate.

Need for Patient and Family Engagement

Patient and family engagement is a vital consideration when discussing the potential use of any restraint; especially when caring for hospitalized patients like Mr. S with a neurodegenerative disorder such as dementia or an acute delirium. Patients and families should be involved in discussions surrounding any decisions that are made regarding restraints and to help identify alternate solutions. By having a family member engaged and present at the bedside, may help to negate the need for restraints. Families should also be educated on the risks associated with restraints, what restraints are, how they are used and for how long, and that they can refuse their use at any time.

It is essential that healthcare professionals educate patients and families about restraints through open communication and sharing of resources. For example, by providing a handout explaining why restraints are used, alternatives to restraints, and what families can do to support their relatives (Nova Scotia Health, 2022). Families often do not realize that they have a voice in the decision-making process surrounding restraints, and the ultimate right to refuse. It is important that healthcare professionals educate families about how and why informed consent must be obtained. Ensuring that patients' dignity, rights, and best interests remain at the centre of all decisions that are being made regarding the use of restraints.

Informed Consent

Informed consent must be obtained prior to the use of restraints in all non-emergency situations (Alberta Health Services, 2020). Informed consent means that a patient has been educated about the implications, risks, benefits, and alternatives of an intervention (e.g. restraints) and are capable to make an informed decision. It is also crucial to empower family members with knowledge on informed consent; specifically, how and why it must be obtained. If a patient is deemed incompetent and is not able to consent to or refuse restraints or treatment then a substitute decision-maker (SDM) such as a guardian, agent, or relative (like Mrs. S) must provide consent.

In behavioural emergency situations, restraints can be applied without consent; consent should then be obtained as soon as possible after the emergency has occurred. When obtaining informed consent all reasons need to be explained, including the types of restraints, intended benefits, risks to both restrain and not, alternative strategies, right to withdraw consent and refuse to the patient, family or SDM. Of particular importance is obtaining and documenting legally required informed consent for all types of restraint, in non-emergencies and restraint monitoring and providing education to patients and families.

Need for Documentation

Another important consideration relates to the need for documentation and monitoring of restraints. Documentation of restraints - both in the literature and anecdotally - is completed inconsistently and lacks clear guidelines for in hospital use (Thomann, Hahn, et al., 2021; Thomann, Zwakhalen, et al., 2021; Siegrist-Dreier et al., 2022). In Thomann, Zwakhalen, et al. (2021) work it is important to note that restraint use was documented in 64% of the cases and regular evaluation occurred in less than half of the cases. In the literature it was also noted that

the type of restraint might be recorded. However, there is often a lack of detail surrounding the reason, outcome, and effect on the patient. Demonstrating the need for consistent and thorough documentation of all alternatives prior to administration and application of restraints, the events leading up to the use, type, explicit reasons why, and attempts made to contact the physician or nurse practitioner, and family and/or SDM.

Documentation should include an accurate and complete record of all nursing care provided, all communication with the patient, family, SDM, prescribers, and other healthcare professionals (College of Nurses of Ontario, 2018). An individualized care plan should also be completed with consideration for the patient's preferences, dislikes, and triggers including instructions with respect to the use of restraints.

Regular monitoring of the patient is essential and should be clearly outlined in the facilities policies and followed in practice. Sharifi et al. (2021) noted that the poor monitoring of patients with restraints affects patient safety, and increases the risk for errors, harm, and complications. Highlighting the need for dedicated restraint education for healthcare professionals working in hospitals.

Need for Education

From the ED, people with dementia are usually transferred to a medical or surgical unit in the hospital, most often wherever there is an available bed. Staff on such units are not often trained in the appropriate care of people with dementia and may resort to restraints so they can attend all patients and try to complete their daily duties accordingly without additional stress/interruption/dedication to the patients with dementia (Digby et al., 2017).

Providing education to healthcare professionals on the consequences and alternatives to restraints would in turn help to reduce the usage of and support staff in finding alternatives to restraints (Abraham et al., 2020; Gunawardena & Smithard, 2019; Sharifi et al., 2021; Thomann, Zwakhaleh, et al., 2021). Restraint education should also focus on training staff to use a person-centred care approach to address responsive behaviours, focusing on the individual (Abraham et al., 2020). Thomann, Zwakhaleh, et al. (2021) recommended standardizing processes, guidelines, and education to increase awareness and have sustained reductions in restraint use.

Auditing and Evaluating Restraints in Hospital Settings

Restraint use and harm to patients resulting from restraints is not routinely measured, audited, reported, or evaluated in hospital settings (Abraham et al., 2020; Thomann, Hahn, et al., 2021; Siegrist-Dreier et al., 2022; Thomann, Zwakhaleh, et al., 2021;). The lack of standardized and clear guidelines for evaluation is another contributing factor to the increased and inappropriate use of restraints in hospital settings (Sharifi et al., 2021; Siegrist-Dreier et al., 2022).

In Alberta and Ontario CC homes, there is auditing, monitoring, and reporting of restraint use, many of which have a zero-restraint policy (Wong et al., 2022). Additionally in some CC homes in Alberta, when a restraint is ordered and deemed necessary, the family/SDM must sign

a consent form which details the type, reason, purpose and expected duration, and education is provided to the patient, family or SDM.

Another important note is that data on restraint use in CC homes is available to the public through the Canadian Institute of Health Information (CIHI) webpage. CIHI (2023) publishes available restraint data on the percentage of CC residents in daily pharmacological restraints without a diagnosis of psychosis. This would compel facilities to have policies, guidelines, and more extensive training, preventing the inappropriate use of restraints and seeking out alternatives.

In hospital, restraint use is not routinely audited, measured, or reported in Canada- where healthcare is a provincial jurisdiction, and different provinces have different policies within their own healthcare systems. Conducting national restraint prevalence measurements and audits in hospitals would allow for the collection of data and rates of restraints as is done for pressure injuries and other quality of care indicators in Canada. Regular auditing of restraints in hospitals will help identify opportunities for improvement, allow for clearer regulations with closer monitoring, benchmarking of restraints in hospitals, and identify gaps in care where further training and education is needed.

Conclusion

The case report of Mr. S underscores the need to take steps to prevent the inappropriate use of restraints during a hospitalization. It is hoped that the implications discussed will increase knowledge, awareness, and change practice to benefit older adults with dementia. In emergent situations where a restraint is required, it should be used for the shortest duration, by the least restrictive means, and re-evaluated frequently. Standardizing processes such as obtaining informed consent with patients, family or SDM, consistent monitoring and documentation, and providing education will help to ensure a sustainable reduction in the use of restraints for hospitalized older adults. Further research is needed on the auditing and evaluation of restraint use in hospitals to gather data through the monitoring, prevalence, and benchmarking of patient restraints in hospital.

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Appendix A

Summary Table (guided by Pinch framework, 1995)

Author(s), Year, Country Published	Purpose	Approach	Sample	Data Collection/Analysis	Key Findings	Comments
Abraham J., Hirt J., Kamm F., & Möhler R. 2020 Germany	To describe characteristics of interventions for reducing physical restraints in hospital settings.	Scoping Review	N = 31 articles (published between 1989 and 2018). 15 quality improvement projects and 16 intervention studies were included.	Used a systematic database search and snowballing techniques. Included interventional studies and quality improvement projects conducted in general hospital.	Found large number of multi component interventions for preventing and reducing restraint usage. Most studies included education for healthcare professionals as a core component. Including: education, alternatives, management of challenging behaviour and information. Also identified policy changes, unit level audits or case conferences, and consultation or information.	Prevalence rates of physical restraints differ widely among different hospital settings, ranging from 0% to 47%, Prevalence rates between units within one hospital differ as well.
Chou, M.Y., Hsu, Y.H., Wang, Y.C., Chu, C.S., Liao, M.C., Liang C.K., Chen, L.K., & Lin, Y.T. * 2020 Taiwan	To evaluate the negative effect of physical restraint (PR), use on hospitalized older adults.	Retrospective cohort study	N = 4,352 Participants (mean age 78.7years, 60.2% = male) were enrolled. Subjects aged 65 years and over who were admitted.	Demographic data including geriatric assessments and hospital conditions were collected from April to Dec 2017. Data was analyzed from hospital electronic health records. Only the first admission, for all participant was used.	Patients that had PRs during hospitalization were at greatest risk of adverse outcomes including functional decline, longer hospital stays and mortality. Restraints were commonly used to prevent falls.	8.3% of patients were PR. Older adults were 3 times more likely to be PR than younger patients.

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Author(s), Year, Country Published	Purpose	Approach	Sample	Data Collection/Analysis	Key Findings	Comments
<p>(Cont'd: Appendix A)</p> <p>Jones, A., Goodarzi, Z., Lee, J., Norman, R., Wong, E., Dasgupta, M., Liu, B., & Watt, J.</p> <p>*</p> <p>2022</p> <p>Canada</p>	<p>To describe restraint use during hospitalizations of older adults at the onset of the COVID-19 pandemic (compared to pre-pandemic levels). Restraint use was cross compared between hospitals in Ontario and Alberta.</p>	<p>Retrospective cohort study and a time series analysis.</p>	<p>71,004 hospitalizations aged 65 years or older across 10 hospitals. 65% were hospitalizations in Ontario. Median age was 76, 48% were female and 93% spoke English.</p>	<p>Time series analysis of acute care inpatients, who were discharged from hospitals in Ontario and Alberta between November 1, 2019, and June 30, 2020.</p>	<p>The COVID-19 pandemic impacted in-hospital use of chemical and physical restraints among older adults (in Ontario, not Alberta). Substantial differences in chemical and physical restraint use by region and hospital suggests opportunities for improvement. Chemical restraint use was more commonly ordered and used than physical restraints in both Alberta and Ontario.</p>	<p>It is important to have a better understanding of chemical and physical restraint use during acute care hospitalizations of older adults. There was variability noted in this study between hospitals which suggests the need to reduce inappropriate ordering of restraints in hospitals and to improve quality of care.</p>
<p>Okuno, T., Itoshima, H., Shin, J. H., Morishita, T., Kunisawa, S., & Imanaka, Y.</p> <p>*</p> <p>2021</p> <p>Japan</p>	<p>To evaluate the impact of regulatory changes, on physical restraint (PR) use among elderly dementia patients in hospital.</p>	<p>Cohort analysis, retrospective study</p>	<p>155,856 patient admissions from 245 hospitals. Older adult patients (aged >64 years) with dementia in hospital between January 6, 2019, and July 4, 2020. Patients were excluded that were admitted to intensive care or hospitalized for COVID-19 treatment.</p>	<p>Divided patients into two groups, either to hospitals that admitted COVID-19 positive patients and hospitals that received no positive patients.</p>	<p>Demonstrated a trend of increased use of PR for hospitalized older adults with dementia. Older adult patients with dementia who require personal care might be more likely to be PR during the COVID-19 pandemic in hospitals receiving COVID-19-</p>	<p>Utilization of telehealth and mental or physical care for healthcare employees may be important in reducing the use of PRs among dementia care patients.</p>

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					positive patients.	
(Cont'd: Appendix A) Sharifi, A., Arsalani, N., Fallahi-Khoshknab, M., & Mohammadi-Shahbolaghi, F. * 2021 Iran	To evaluate the principles of physical restraint (PR) use for hospitalized older adults.	Integrative Review	20 eligible documents were included in this study. Initially 734 documents were retrieved and after duplicates, irrelevant and irrelevant studies were removed.	The documents were grouped into six main principles for PR use including education, decision making, implementing the PR procedure, monitoring patients with PR, documentation, and principles of PR management.	Suggested all healthcare providers should have quality PR education; make decisions in collaboration with patients and families; use standard devices & techniques; continuously monitor patients; document thoroughly all PR care measures. Hospitals should provide clear guidelines for PR use.	This study suggested that all healthcare providers should receive PR related education. This study suggested the following education themes: -knowledge & skills for patient assessment, PR use, PR outcome evaluation. -education on strategies for effective management of high-risk situations to minimize PR use -intelligent decision making, legal & ethical requirements -techniques & assessments, consequences, & appropriate documentation.
Siegrist-Dreier S., Barbezat I., Thomann S., Richter D., Hahn S., Schmitt K.U. * 2022 Switzerland	Explores perceptions and experiences of healthcare workers related to restraint use in hospitals.	Qualitative design	19 participants were involved in the study (i.e. nurses, physicians, physiotherapists) with experience restraining patients. They worked at an acute care hospital in Switzerland on an acute geriatric unit, intensive care unit or an intermediate care	3 topic-based focus group interviews were conducted. Data collection and analysis were carried out through the method of mapping techniques for rapid qualitative data analysis.	No universal guidelines on restraints internationally. Topic of restraints in hospitals is less discussed and number of studies is much lower. Staffing shortages, higher turnover, limited experience noted to result	The views of healthcare staff were included in this study and helped to shed light on several important themes in hospital restraint use. In this study nursing took initiative to use and lead in implementation of restraints. Noted that physician's interest in restraints

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			unit. hospital in Switzerland. They were recruited by invitation and participation was voluntary.		in greater use of restraints in hospitals. Reported a wide variation in the use of restraints throughout different hospitals. Posing an increased risk to patient safety. Implementation of most restraint use was led by nurses. The use of restraints differed significantly. Attitudes and experiences were the main determinants for restraint use. Nurses asked for more team discussion about restraints, more support at an interprofessional level and better guidelines to help with decision-making processes.	varied widely, restraining measures were not questioned by physicians. Documentation was inconsistent with no precise guidelines. Most documented about the type, not the effect on the patient. Progression of situations were not captured. MD orders not completed for all restraints, if they did it was done retrospectively and requested by nursing. Families were not always actively informed and had to inquire before they received information. Identified a lack of clear guidelines for evaluation. Delirium management was not optimized, treatment was inconsistent and led to higher restraint usage. Wished for more standards and guidelines. Restraints viewed as a 'safety measure'.

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Author(s), Year, Country Published	Purpose	Approach	Sample	Data Collection/Analysis	Key Findings	Comments
(Cont'd: Appendix A) Singh A., Gupta, I., Wright S.M., & Harris C.M. * 2023 United States	To understand how often physical restraints (PRs) were used on hospitalized patients with dementia and their outcomes compared to those not requiring PRs.	Multivariable regression analyses used to assess patient outcomes.	N 64,390 had PRs used. N 927,214 without restraints used. Patients were compared between those with restraints and without. Males (59%) were most often PR and had a mean age of 78. Urban hospitals had more restrained patients than unrestrained. Black patients had a greater proportion of the restrained group than the unrestrained group. Patients with dementia and behavioural disturbances were also compared to those with and without PRs during hospitalizations.	The National Inpatient Sample database was used from 2016-2020 comparing restrained and unrestrained patients with dementia.	Patients in PR with dementia had higher in hospital mortality results. They were less likely to be discharged home and had longer lengths of stay. Black patients experienced 1.3 times higher odds of being restrained. Had higher hospital resource utilization.	Outcomes measured included in hospital mortality, length of stay, charges and if they were discharged home or not. Each decision to use restraints is context dependent and should be individualized. Using restraints should be carefully considered and only after all other measures have been exhausted.
Thomann S., Zwakhalen S., Richter D., Bauer S., & Hahn, S. * 2021 Switzerland and Austria	To investigate restraint, use in hospital settings regardless of unit or area. Looked at restraint type, reasons, process indicators and patient characteristics.	Cross-sectional multi-centre study	N 29,477 patients in 140 hospitals were surveyed regarding restraint use in Switzerland and Austria. The median age was 70 years and approximately half were female. Average length of stay was 5 days and most patients were independent in their care. The 30-day prevalence rate of	Data was collected at three points between 2016 and 2018.	Mechanical restraints were the highest proportion of restraint type used at 55.0%. The main reason cited for restraint use was fall prevention at 43.8% and secondly for confusion or delirious behaviour at 20.4%.	There is a greater need for documentation and ongoing evaluation of restraint use in hospital. Standardizing processes and education surrounding restraints was suggested to increase awareness and have sustained reductions.

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			patients with at least one restraint was 8.7%.		In 64.3% of cases restraint use was documented.	
Wong, E. K., Watt, J., Zou, H., Chandraraj, A., Zhang, A. W., Brookes, J., Verduyn, A., Berall, A., Norman, R., Piggott, K. L., Izukawa, T., Straus, S. E., & Liu, B. * 2022 Canada	To describe patient characteristics, treatments, and outcomes among hospitalized older adults with COVID-19.	Retrospective cohort study conducted at 7 Hospitals in Toronto, Ontario.	927 patients admitted to acute care hospitals with COVID-19 during wave 2 of the pandemic (August 1, 2020, to February 20, 2021). The median age was 79 years, 45% were female. Majority of patients were frail. Prevalence of delirium was 53.6% with an incidence of 33.1%. Restraint use was documented in 20.4% of patients.	For this study patient characteristics and outcomes were obtained from charts and analyzed.	The incidence of delirium and the use of restraints were common in hospitalized older adults admitted with COVID-19. Patients in a delirium were often restrained (37.0%), had received antipsychotics (53.5%) or benzodiazepines (31.0%). Various organizations recommended limiting the use of physical restraints in older hospitalized patients because of increased risk of injuries.	Owing to visitor restrictions related to COVID-19, family members were not allowed to visit in person and support a loved one in delirium which may have led to increased use of mechanical and pharmacologic restraints. No patients in the rehabilitation or long-term care settings required the use of restraints. Routine audits of restraints are conducted in long-term care homes in Ontario, this does not occur in acute care hospitals. This factor may have encouraged those facilities to have better staff training and policies for patients with agitation. Further research and staff training should be implemented with the frequent use of restraints and antipsychotics in hospitalized older adults.

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